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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,190	09/15/2003	Kenichi Ohkubo	56232.95	1414

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Cameron K. Kerrigan  
Squire, Sanders & Dempsey L.L.P.  
Suite 300  
1 Maritime Plaza  
San Francisco, CA 94111

EXAMINER
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SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/663,190

Applicant(s)

OHKUBO ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/15/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

**Claim Objections**

1. Claim 14 is objected to because of the following informalities:

Words appear to be missing in claim 14, line 3 which recites "wherein the is an aqueous ink of claim 13 is ejected".

Appropriate correction is required.

**Claim Rejections - 35 USC § 112**

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9, which depends on claim 6, recites "wherein an average degree  $n$  is 1-10". The scope of the claim is confusing given that there is no recitation in claim 6 regarding " $n$ ". Thus, it is not clear what " $n$ " refers to in claim 9. Should the dependency of claim 9 be changed to claim 7 or claim 8?

Similar questions arise in claim 23, which depends on claim 15, and recites "wherein an average degree  $n$  is 1-10" wherein there is no recitation in claim 15 regarding " $n$ ". Should the dependency of claim 23 be changed to claim 21 or claim 22?

**Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7 and 9-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakai et al. (U.S. 2003/0050362).

Sakai et al. disclose aqueous dispersion of colored particles prepared by emulsifying a mixture comprising a colorant and a polymer using a reactive emulsifier and then copolymerizing the emulsified mixture with a polymerizable monomer. Sakai et al. disclose colorant, i.e. pigment or dye, coated with water-insoluble resin such as acrylic resin, i.e. core, that is encapsulated with copolymer obtained from polymerizable unsaturated monomer and reactive emulsifier, i.e. shell. The reactive emulsifier is anionic or nonionic and includes those known under the tradenames Adeka Reasoap SE series and NE series and Latemul which are identical to the reactive emulsifiers utilized in the present invention. It is disclosed that the ratio of colorant to polymer is 0.43 (3/7) to 2.3 (7/3). The colored particles possess average particle diameter of 200 nm or smaller. There is also disclosed ink comprising the colored particles. There is further disclosed image recording method wherein the ink is ejected from ink jet printer onto substrate (paragraphs 2, 11, 18-19, 21, 36, 38-40, 42, 47-49, 53-54, 58, 71, 94, and 97).

In light of the above, it is clear that Sakai et al. anticipate the present claims.

6. Claims 1-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Ninomiya et al. (U.S. 2003/0199613).

Ninomiya et al. disclose aqueous dispersion of colored particles prepared by emulsifying with reactive emulsifier a mixture comprising colorant, i.e. oil-soluble dye, and resin followed by copolymerizing the mixture with polymerizable monomer. The reactive emulsifier includes those known under the tradename Adeka Reasoap NE-10, NE-20, and NE-30, Latemul S-180, and Aqualon KH-05 and KH-10 which are identical to the reactive emulsifiers utilized in the present invention. The colored particles have core/shell structure wherein the core contains resin and oil-soluble dye and the shell contains resin. The peak particle diameter of the colored particles is not more than 50 nm. The ratio of polymer to colorant is calculated as 0.06 (0.5/30) to 30 (30/1). The resin includes styrene-acrylate copolymer or acrylate copolymer. There is also disclosed ink comprising the colored particles. There is further disclosed image recording method wherein the ink is ejected from ink jet printer onto substrate. Further, Ninomiya et al. disclose method comprising dissolving resin and dye in solvent, emulsifying using reactive emulsifier, adding monomer, and then polymerizing monomer (paragraphs 1, 21, 23, 27, 31, 35, 37, 74, 99, 101, 104-106, 119, 132, 151-152, 155-157, and 183-186).

In light of the above, it is clear that Ninomiya et al. anticipate the present claims.

7. Claims 1, 3-7, 9-15, 7-21, and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuribayashi et al. (U.S. 2004/0009294).

Kuribayashi et al. disclose aqueous dispersion of colored particles which is prepared by emulsifying a mixture comprising a colorant and a polymer using a reactive surfactant and then copolymerizing the emulsified mixture with a polymerizable monomer. The colored particles are in a core/shell structure wherein the core is obtained from polymer (dispersant) and pigment and the shell is obtained from polymerizable monomer. The colored particles have average diameter less than 150 nm. The ratio of pigment to polymer is calculated as 0.02 (1/50) to 20 (1/.05). The reactive surfactant includes anionic surfactant and includes those known under the tradename Adeka Reasoap NE-10, NE-20, NE-30, SE-20N, and SE-30N, Eleminol JS-2, and Latemul S-180, S-180 A, S-120, and S-120 A which are identical to those utilized in the present invention. The polymer (dispersant) is obtained from styrene, (meth)acrylates, and/or (meth)acrylic acid. There is also disclosed aqueous ink comprising the dispersion of colored particles and image recording method using ink jet printer. There is also disclosed method comprising emulsifying a mixture of a polymer and colorant in aqueous solvent to prepared emulsion using reactive surfactant, adding monomer to the emulsion, and copolymerizing the monomer (paragraphs 7, 22, 24, 27-29, 34, 36, 57-61, 68-70, 75-76, 80-83, 85, 108, 129, 170, and example 13).

In light of the above, it is clear that Kuribayashi et al. anticipate the present claims.

**Claim Rejections - 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

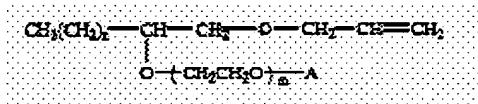
9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (U.S. 2003/0050362) in view of Nakamura et al. (U.S. 2003/0195274).

The disclosure with respect to Sakai et al. in paragraph 5 above is incorporated here by reference.

The difference between Sakai et al. and the present claimed invention is the requirement in the claims of specific type of reactive emulsifier.

Nakamura et al., which is drawn to ink jet ink, disclose the use of colorant encapsulated with polymer obtained from reactive emulsifier of the type:



wherein A is SO<sub>3</sub>M where M is alkali metal or ammonium salt residue, m is 2-20, and n is 9 or 11 and which are known, for instance, under the tradename Aqualon KH-05 or KH-10 and thus, are identical to those presently claimed. The motivation for using such reactive emulsifier is to ensure excellent dispersability of the encapsulated particle and produce ink with excellent ejection stability, image density, absorbability to paper, and color developability. Nakamura et al. also disclose the equivalence and interchangeability of the above reactive surfactant with reactive emulsifier known under the tradename Adeka Reasoap SE series or NE series as disclosed by Sakai et al. (paragraphs 155-165 and 169).

In light of the motivation for using specific reactive emulsifier disclosed by Nakamura et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such reactive emulsifier in Sakai et al. in order to produce ink with excellent ejection stability, image density, absorbability to paper, and color developability, and thereby arrive at the claimed invention.

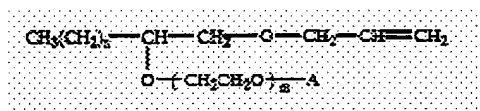
11. Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuribayashi et al. (U.S. 2004/0009294) in view of Nakamura et al. (U.S. 2003/0195274).



The disclosure with respect to Kuribayashi et al. in paragraph 7 above is incorporated here by reference.

The difference between Kuribayashi et al. and the present claimed invention is the requirement in the claims of specific type of reactive emulsifier.

Nakamura et al., which is drawn to ink jet ink, disclose the use of pigment encapsulated with polymer obtained from reactive emulsifier of the type:



wherein A is SO<sub>3</sub>M where M is alkali metal or ammonium salt residue, m is 2-20, and n is 9 or 11 and which are known, for instance, under the tradename Aqualon KH-05 or KH-10 and thus, are identical to those presently claimed. The motivation for using such reactive emulsifier is to ensure excellent dispersability of the encapsulated particle and produce ink with excellent ejection stability, image density, absorbability to paper, and color developability. Nakamura et al. also disclose the equivalence and interchangeability of the above reactive surfactant with reactive emulsifier known under the tradename Adeka Reasoap SE series or NE series as disclosed by Kuribayashi et al. (paragraphs 155-165 and 169).

In light of the motivation for using specific reactive emulsifier disclosed by Nakamura et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such reactive emulsifier in Kuribayashi et al. in order to produce ink with excellent ejection

stability, image density, absorbability to paper, and color developability, and thereby arrive at the claimed invention.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vincent et al. (U.S. 2004/0157956) disclose coated pigment encapsulated with latex with reactive surfactant attached to surface of latex.

Ninomiya et al. (U.S. 2003/0055115) disclose pigment coated with resin.

Miyabayashi ~~et al.~~ (U.S. 2002/0077385) disclose colored polymer obtained from emulsifying pigment using reactive emulsifier, adding monomer to the emulsion, and then polymerizing the monomer.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
7/8/05